

to represent the University at the approaching Centennial of the University of New Brunswick.

The honorary degree of D.Sc. is to be conferred on Mr. Charles Hose, of Sarawak, to-day (April 26).

At the spring graduation ceremony of Edinburgh University, the honorary degree of LL.D. was conferred upon Miss E. O. Ormerod, Dr. C. D. F. Phillips, and (*in absentia*) Dr. A. Stuart, professor of physiology in the University of Sydney.

It is hoped (says the *Athenaeum*) that the Prince of Wales will preside at the next Presentation ceremony of London University, which will be held in the new home of the University at South Kensington on May 9.

The governors of the Goldsmiths' Company Technical and Recreative Institute, New Cross, again report a decline in the number of students, owing to the establishment of free evening continuation classes close to the Institute by the London School Board. It will be remembered that the extension of the work of the School Board to technical education has been called into question, and that the official auditor has disallowed items in the Board's accounts referring to such expenditure. The School Board has appealed against his decision, and the whole matter will shortly be argued in the Queen's Bench Division. The engineering department of the Goldsmiths' Institute shows an increase of members, in spite of the competition of free continuation classes. It is satisfactory to notice that the governors are taking steps to encourage students to undertake systematic courses of study, extending over three or more years, and propose to periodically test the efficiency of such courses by appointing independent examiners in grouped subjects, and to award special certificates for such examinations. Mr. J. Carrington having given 100 guineas towards the encouragement of systematic study, a portion of that sum will, during the current year, be devoted to prizes in connection with these special courses. The governors report that the quality of the work done in the advanced classes in chemistry is excellent, and some useful research work is being carried on by the students.

THE annual income of the Technical Education Committee of the Derbyshire County Council is at present about 11,000*l.*, exclusive of Science and Art Department's grants. This income is used to supplement local effort, and not to supersede it. Promising students of elementary schools in the county are assisted to proceed to secondary schools, and really able students of secondary schools are enabled to proceed to University or Technical Colleges, or Universities. In addition to awarding these scholarships the Council assists the development of the work of secondary schools, by means of building and equipment grants, supply of apparatus, &c. Agricultural experiments are carried on in connection with the Agricultural Department of the Nottingham University College, and the Midland Dairy Institute, Kingston, Notts. All the work of these institutions is placed under the inspection of the Board of Agriculture, which aids the work by a grant of 700*l.* a year. An experiment commenced in 1897 at Egginton for the purpose of demonstrating the influence on the quantity and quality of the herbage of permanent grass land by the use of different kinds of natural and artificial fertilisers has been continued. Each year the grass upon the different plots is cut and weighed, and the proportions of the various grasses and plants constituting the herbage is estimated. A member of the University College staff experienced in such work superintends the laying out of the plots, the sowing of the manures, and the cutting and weighing of the grass. The area under experiment is two and three-quarter acres, and the size of the plots one-eighth of an acre. The results of the experiment have been published for use by the agriculturists of the counties which promoted it.

THE report of the Advisory Committee appointed to inquire into the best manner of providing for scientific and commercial training-respectively in connection with the new University of Birmingham has just been issued. It will be remembered that Mr. Andrew Carnegie and an anonymous donor each promised a gift of 50,000*l.* towards the establishment of these two departments. The committee have made inquiries as to facilities for the teaching of science in its application to industries, and they report that, in their opinion, no such teaching, complete as they contemplate it, and as it must be if it is to be

successful, exists in any college in Great Britain. In making their recommendations, the committee have had in view the object of the teaching of science in its application to industry, coupled with such technical instruction in handicrafts as will enable the students to complete their course in the University itself. It is proposed that the facilities already provided in Mason University College should be supplemented by chairs of mining, metallurgy, engineering, and applied chemistry. The scheme submitted contemplates the introduction of a complete equipment for the treatment of metals by heat and a small plant for treatment by electricity, as well as the necessary outfit for testing metals. Shops would be provided for manual training, and it is recommended that the machines used should be of the best and most modern type of English, American, and foreign manufacture. The committee further recommend the acquisition of 25 acres of land in the outskirts of Birmingham on which to build the University, their estimate of the total cost being 155,000*l.*

### SCIENTIFIC SERIALS.

*American Journal of Science*, April.—Skull, pelvis, and probable relationship of the huge turtles of the genus *Archelon* from the Fort Pierre Cretaceous of South Dakota, by G. R. Wieland. The marine turtles of the Fort Pierre Cretaceous of South Dakota not only represent the most gigantic species known, but also are of much importance as including undoubted descendants of *Protostega* from the underlying Niobrara Cretaceous, in common with which they may be regarded as ancient relatives of *Dermochelys*.—Application of the radio-micrometer to the measurement of short electric waves, by G. W. Pierce. A long loop of fine copper wire is suspended by a quartz fibre in a strong magnetic field. The lower ends are twisted together for some distance down, and carry at the bottom a mica vane on which is mounted a small resonator consisting of two vertical copper cylinders, joined by a constantan and a manganin wire which cross in the centre between the cylinders, and are attached to the ends of the copper wire. The impact of electric waves produces surgings between the two cylinders, which heat the junction and produce a thermo-electric current in the copper loop. The latter turns in the magnetic field, and thus indicates the waves. The author confirms Righi's observations of the different transparency of wood along and across the grain.—A large slab of *Uintacrinus* from Kansas, by C. E. Beecher. This paper contains photographs of a slab of limestone preserving on its surface a number of fine specimens of *Uintacrinus socialis*, Grinnell. It has 27 square feet of surface, and contains 220 crinoids.—Granodiorite and other intermediate rocks, by W. Lindgren. Granodiorite, a member of the great family of rocks with predominating soda-lime feldspars, is distinguished by a granular texture, greyish colour, and a mineral composition of quartz, oligoclase or andesine, orthoclase or microcline, hornblende or biotite. The family represents an important and widespread type of rocks, especially common along the Pacific slopes of the Cordilleran ranges.—Two new American meteorites, by H. L. Preston. Describes the Luis Lopez siderite, characterised by the length of its bands of kamacite, and the Central Missouri meteorite, which is distinguished by the absence of etching figures, its beautiful pitting and prominent ridges of a lustrous dark steel-grey colour resembling graphite, and containing small quantities of carbon.

*Annalen der Physik*, No. 3.—Wave current generators, by C. Heinke. The author discusses variable currents from two different aspects. Some are generated as such, whereas others are generated by continuous currents broken up into variable currents by mechanical, liquid, or gaseous gaps in the circuit. The latter require a certain "saturation current" which is independent of the E.M.F.—Absorption of light in electrically-glowing gases, by M. Cantor. Kirchhoff's law does not hold for electrically glowing gases; though it may hold for flames. The author sent a strong beam of light through a vacuum tube from end to end and back, and compared its intensity with a beam passing through the open air. The beam of light suffered no absorption by the glowing gas. This result could only be made to agree with Kirchhoff's law of radiation by supposing the gas to possess an extremely high temperature. This, as we know, it does not possess. Hence we have a case of emission

without absorption, which indicates that the light-producing mechanism is quite different from what it is in flames.—Analysis of oscillating jar discharges by means of the Braun tube, by F. Richarz and W. Ziegler. The authors note a curious appearance produced in a Braun kathode-ray tube when the fluorescent screen is moved in a direction at right angles to the oscillation of the beam influenced by the discharge. It is a kind of herring-bone structure, in which the slanting ribs are produced by the apparent coalescence of the points of reversal, where the track is brightest and the motion slowest.—A mixture of three powders for producing electric dust figures, by K. Bürker. A mixture far superior to the ordinary minium-sulphur combination may be obtained by mixing five volumes of flowers of sulphur with one volume of powdered carmine and three volumes of lycopodium seed. The colours are reversed with respect to the ordinary mixture.—Effect of ultra-violet light upon gaseous bodies, by P. Lenard. The author proves that not only kathode and Becquerel rays are able to make air electrically conducting, produce nuclei of condensation in it, and convert part of it into ozone, but the same effects are produced, though only to a slight extent, by the extreme ultra-violet rays. The source of light used was the electric spark, but the arc light, and even sunlight, contain some rays effective in this respect.—Quincke's rotations in the electric field, by L. Graetz. Instead of suspending spheres of the dielectrics by threads, the author mounts them in the electrolyte on points, so that they have freedom of rotation. The speed of rotation, when it becomes constant, gives a measure of the conductivity of the dielectric. This mode of measurement may be applied to measuring the conductivity of air ionised by Röntgen rays.—Electrolytic interruptor for feeble currents, by A. von Rzewuski. If the pressure of the acid upon the anode is increased, the current is interrupted at feeble E.M.F.'s. This is done by either making a current of acid flow against the anode, or by suspending the reservoir of the acid some distance above the anode and connecting it by a tube.

In *Synon's Monthly Meteorological Magazine* for April, Mr. A. B. MacDowall draws attention to a curious fact about London summers. Since 1841, the mean temperature of the summer months (June–August) at Greenwich has fluctuated between the extremes  $57^{\circ}4$  and  $65^{\circ}1$ . If we select all the summers reaching or exceeding  $63^{\circ}$ , and all those reaching or falling below  $60^{\circ}$ , it will be observed that the hottest summers are nearly all in years ending with the figures 5 to 9, and that the coolest summers are mostly in years ending with 0 to 4. It would appear, therefore, that the earlier summers in a decade tend to be cooler, and the later summers hotter. The data previous to 1841 are not so trustworthy, but if we take Dr. Buchan's figures as the most dependable, it might be shown that as far back as 1810, at least, the same contrast is indicated. The author of the paper would be glad of any explanation of the cause of this feature in our summer weather.

## SOCIETIES AND ACADEMIES.

### LONDON.

**Chemical Society**, March 29.—Annual General Meeting.—Prof. Thorpe, President, in the chair.—After the delivery of the presidential address, a ballot was held for the election of officers and council for the ensuing year.—At an extra meeting held in the evening, Sir H. E. Roscoe, Vice-President, delivered the Bunsen Memorial Lecture.—April 5.—Prof. J. M. Thomson, Vice-President, in the chair.—The following papers were read:—The liquefaction of a gas by "self-cooling" (a lecture experiment), by G. S. Newth. The author exhibits the liquefaction of nitrous oxide by rapidly passing the gas from the slightly-warmed storage cylinder through a fine copper tube spiral inserted in a vacuum-jacketed test-tube.—Note on partially miscible aqueous inorganic solutions, by G. S. Newth.—The decomposition of chlorates. Part ii. Lead chlorate, by W. H. Sodeau. The slow decomposition of lead chlorate by heat consists of the two independent reactions: (1)  $\text{Pb}(\text{ClO}_3)_2 = \text{PbCl}_2 + 3\text{O}_2$ , and (2)  $\text{Pb}(\text{ClO}_3)_2 = \text{PbO}_2 + \text{Cl}_2 + 2\text{O}_2$ . The reaction  $\text{PbO}_2 + \text{Cl}_2 = \text{PbCl}_2 + \text{O}_2$  simultaneously proceeds to a greater or less extent.—The bromination of benzeneazophenol, by J. T. Hewitt and W. G. Aston.—A new glucoside from willow-bark,

by H. A. D. Jowett. The author has isolated, from the bark of a species of *Salix*, the glucoside of methoxybenzaldehyde and gives to it the name salinigrin.—Alkylation by means of dry silver oxide and alkyl iodides, by G. D. Lander. Dry silver oxide and ethyl iodide react with acetanilide yielding ethyl *z*-acetanilide,  $\text{C}_6\text{H}_5\text{N} : \text{C}(\text{OEt})\text{Me}$ .—The interaction of mesityl oxide and ethyl sodiomethylmalonate, by A. W. Crossley. By the condensation of mesityl oxide with ethyl sodiomethylmalonate, ethyl trimethyldihydroresorcylic,  $\text{C}_{12}\text{H}_{18}\text{O}_4$ , is obtained; on hydrolysis it yields trimethyldihydroresorcinol,



—The products of the action of fused potash on dihydroxystearic acid, by H. R. Le Sueur.

**Entomological Society**, April 4.—Mr. G. H. Verrall, President, in the chair.—Mr. M. Jacoby exhibited specimens of the genus *Sagra* from Eastern Asia.—Mr. M. Burr exhibited three species of *Pseudophyllidae*, two new species of *Capnoptera* (females), and *Capnoptera quadrimaculata*, Westw. (female), collected in the Siamese Malay States by Mr. N. Annandale. The specimens illustrated the peculiar methods of protection adopted by the insect when alarmed.—Mr. H. J. Elwes communicated a paper on "Bulgarian Lepidoptera," and made some remarks on the more notable species which he had taken in the Balkan Peninsula during the months of June and July 1899. The number of species of *Rhopalocera* captured was 120, which, with a further 20 recorded by Haberhauer and Lederer, brings up the total to 140. The mountains visited were an extension of the Rhodope range where the climate was particularly rainy, a great number of ferns flourishing everywhere, in contrast to the drier Balkans, where the number of species of *Rhopalocera* is not less than 200. Some interesting forms but no new species were encountered. A variety of *Colias myrmidone* occurred much larger and brighter than the Austrian, and more nearly agreeing with the Ural, form. The form of *Coenonympha datus* met with showed an affinity with the Asiatic and not the European form. The form of *Argynnis pales* was intermediate between that found in Greece and the central European Alps, while a form of *Erebria*, var. *gorgone*, was taken similar to that in the Pyrenees—a curious instance of interrupted distribution.

**Linnean Society**, April 5.—Mr. C. B. Clarke, F.R.S., Vice-President, in the chair.—Mr. W. B. Hemsley, F.R.S., exhibited and made remarks on a selection of plants collected by Dr. A. Henry and Mr. W. Hancock in the neighbourhood of Mengtze and Szemao in Western China.—Dr. D. H. Scott, F.R.S., read a paper "on *Sphenophyllum* and its allies, an extinct division of the vascular cryptogams." The author explained that his purpose was not to communicate any new observations, but to give a summary of our present knowledge of the group and to discuss its affinities. He pointed out that the study of the Palaeozoic Flora not only greatly widens our conception of the three existing classes of Pteridophyta, but adds a fourth—that of the Sphenophyllales—to their number. The various views which have been held as to affinities of the Sphenophyllales were discussed in the light of the results recently attained. The supposed relation to Hydropteridae, though supported by some ingenious arguments, was rejected as baseless, and as inconsistent with the manifest Filicinean affinities of that family. The author came to the conclusion that the Sphenophyllales were most naturally regarded as the derivatives of a synthetic group, combining the characters of Lycopods and Equisetales, and indicating the common origin of these two classes.

### PARIS.

**Academy of Sciences**, April 17.—M. Maurice Lavy in the chair.—On the heat of combustion of some very volatile liquids, by MM. Berthelot and Delcambre. The method for burning volatile liquids in the calorimetric bomb previously described by the authors involves the use of collodion films, and as collodion is not infrequently dissolved by the vapours of the liquid under examination, a new method has now been devised. The liquid is sealed up in a thin glass bulb, which it completely fills, and this bulb is burst in the bomb by a small piece of camphor, the weight and heat of combustion of which are exactly known. Determinations are given for aldehyde, methylal, methyl formate, ethyl formate, propaldehyde and isopropaldehyde.